

at seventeen, many a good man at seventy but there are more good horses at seven than seventeen and more good men at forty than seventy. I have had good queens at three years but I have been tricked so often in the spring that I take no chances.

Mr. Darling—I might answer Mr. McKnight's question by asking another: Why is it that poultrymen find that their old hens are the best cluckers? I think there is a scientific reason for it; they are getting old and there must be something to take their place or soon the variety would run out.

I believe what Mr. Pettit has said is correct but it is also the fact. As Mr. McEvoy has said, that after two years queens begin to fail and as a general rule fail rapidly. I have had good queens at three years old. I don't know that I have had what I would call a good queen at four, while it is possible for a queen to live five years. I have tried it so many times that I have about come to Mr. McEvoy's conclusion, that a person is not safe in keeping them over two years. I think the reason why an old queen deposits more drone eggs than the young queen is just as I have stated, she is failing, but I think there are perhaps two reasons; there is the one spoken of by Mr. Evans, that fertilization has failed, partly. It has been admitted for some time that if a person wishes to have worker comb built she puts in a young queen.

Mr. Heise—How does Mr. Darling know that the queen, when she is failing, will deposit a drone egg in a worker's cell?

Mr. Darling—I have had it time after time.

Mr. McEvoy—So have I.

Mr. McKnight—I confess I have not gotten very much information yet with reference to the question I put. It is a fact that queens lay more drone eggs than young queens when they come to a certain stage of their existence and there is a very good reason for it, but in order to comprehend and appreciate that reason one must know something at least of the physiology of the queen.

A queen bee, like most female creatures, has in her organization what is known as ovaries, egg vessels, in which the embryo egg lies; and all the embryo eggs lie there for the opportunity of development during the lifetime of the female; there is a tube reaching down from these ovaries which is scientifically known as the falliopian tube. As has been stated a drone mates with a queen once in her life and at the junction of the falliopian tube in the organization of the bee there is a little sack-like aperture to one side and when a drone meets with a bee the male principle is deposited in that cell and there it

remains as long as it has any vitality, during the queen's lifetime, or what is left of it. When the queen sends an egg down one of the falliopian tubes she can by the power of her own will either bring it in contact with that male principle or pass it by untouched. Every egg that comes in contact with the male principle becomes impregnated and the result is a worker bee. When the queen wishes to deposit drone eggs she passes the egg on without it coming in contact with the male principle, the result is a drone bee. When a queen gets old and tens of thousands of eggs have passed down these tubes and come in contact with that male principle, it becomes exhausted, its vitality is gone, and the eggs may come in contact with it and not be impregnated with it. That is the reason why old queens lay more drone eggs than young queens. The old queen, following her instinct, whether the egg is impregnated or not, deposits the egg in a worker's cell. That is my reason why an old queen lays more drone eggs than a young queen and why drone eggs are sometimes deposited in worker cells.

Rev. Mr. Clarke—I think one of the mistakes of modern bee keeping is the disposition on the part of bee-keepers to think that their knowledge is better than the instinct of the bee. I think the instinct of the bee teaches her when it is time to supersede an old queen more correctly than we can find out when it is to be done. My experience agrees with Mr. Pettit's in regard to the very great vitality of some queen bees. I have had queen bees three and four years of age, as he has said, better than any one year old queen and yet we have got eminent bee keepers who make a point of superseding every queen at two years old.

Mr. Matheson or Hutchinson of Michigan every year sells a batch of two years old bees because he wants to put in younger ones.

Mr. Gemmell—Are not the queens that he sells over one year old? He got queens from the south in the spring and sells them at one year old.

Rev. Mr. Clarke—It is the queen's second year of service.

He sells those queens just when they may nicely be expected to be entering upon their best stage of usefulness; that is the point; I don't care how old they are. He sells them and subjects them to all the check that there is by shipping; after they have been sold and shipped they are not anything like so good as when he shipped them because they have had a very great check.

Mr. Gemmell—I would like to correct Mr. Clarke in regard to the queens. The reason Mr. Matheson gets those queens